



Spatial Relations of Earthquake Induced Landslides triggered by 25 April 2015 Gorkha Earthquake, Mw 7.8, Nepal

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Strong earthquakes trigger large number of landslides in mountainous areas, creating a secondary disaster of loss of lives and property, blocking of lifelines and rivers-threats to landslide dam bursts. The 25 April 2015 Gorkha Earthquake, occurring in a predominantly young mountain formation, has triggered more than 16,000 co-seismic and post-seismic landslides which are widely distributed in an area of about 40000 sq. km. These landslides occurred in localized swath and seem to follow some seismo-topogenic trends. Most of the earthquake triggered landslides are shallow seated and a significant number is also found to occur nearby river sides and at higher slopes.

To identify the distribution pattern of these landslides and their relationship with seismic, topographic and geological proxies of the earthquake, the inventory of all the possible triggered landslides were prepared using the updated satellite imagery in Google Earth- verified as earthquake triggered by using the historical imagery feature. The seismic parameter includes distance to epicentre, perpendicular distance from inferred probable seismogenic fault and PGA values; topographic parameter includes aspect, gradient, curvature and elevation; and geological parameter include the lithology.

We have correlated the landslide distribution with the seismic, topographic and geological parameters for this earthquake. More than 99% of the landslides fall under the shallow landslides and dry debris falls category occurring on steep to moderate slopes. Regional clustering is observed along nearby the probable seismogenic fault surface projection. However, our analysis is based in a partially complete inventory- because of areas with cloud cover, poor resolution imagery and uninterpretable imagery. Therefore, we will present our preliminary understanding about the distribution of landslides in this paper.